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‘iable Levies: ‘riers to Grain Imports in France, the Netherlands, Federal Republic of Germany, and United Kingdom

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Abstract

The European Community protects its grain farmers by assessing a levy on imports of soft and durum wheat, barley, maize, oats, and rye from nonmember countries. The levy increased the price of imported grains by an average of 150 percent between 1974 and 1978. Differences in border taxes and subsidies, and the strength of different currencies cause the levy to vary from one country to another. The levy offers the most protection to West Germany and the least to the United Kingdom.

Keywords: Import duties; Nontariff barriers; Grain; European Community.

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Summary

The European Community (EC) protects its domestic grain producers by assessing levies on imports of soft and durum wheat, barley, maize, oats, and rye. The purpose of the levy is to raise the prices of grain imports to equal the domestic support prices fixed every year by the EC. The levy is designed to promote intra-EC trade and production of grains at the expense of other exporters.

The levy, although theoretically fixed for the EC, actually varies from one country to another because of the system of border taxes and subsidies (Monetary Compensatory Amounts -- MCA's) that are applied in EC trade. The MCA's are used to equalize agricultural prices among member countries by compensating for changes in import and export prices caused by fluctuations in exchange rates.

The nominal protection provided by grain import levies during 1970-78 was higher in the Federal Republic of Germany and the Netherlands than in France and the United Kingdom. The amount of protection offered by the levy was equivalent to an ad valorem tariff of 62 percent in the Federal Republic of Germany for that period, and ad valorem tariffs of 57, 41, and 17 percent in the Netherlands, France, and the United Kingdom, respectively. Protection rates are higher for food grains than for feed grains.

Abbreviations

ACA = Accession Compensatory Amounts: amounts reflecting differences between full CAP prices and transitional CAP prices fixed for the United Kingdom, Ireland, and Denmark upon entry into the EC in 1973. ACA's were eliminated in January 1978.

CAP = Common Agricultural Policy, agreed upon by EC in 1962.

c.i.f. = Cost plus insurance and freight.

EC = European Community: France, the Netherlands, Federal Republic of Germany, United Kingdom, Italy, Belgium, Luxembourg, Ireland, and Denmark.

ECU = European Currency Unit: a standard of value for denominating CAP prices adopted by the EC in March 1979.

MCA = Monetary Compensatory Amounts: border taxes and subsidies applied in intra-EC and extra-EC trade.

SGM = Standard Gross Margins: the difference between the standard value of production and the standard value of certain direct costs on a per hectare basis.

U.A. = Unit of Account: the standard of value for denominating CAP prices until March 1979, when it was replaced by the ECU.

VAT = Value-Added Tax: the method of taxation in the EC in which the tax is levied on the value added to goods and services at various levels in the production and distribution chain.

Variable Levies:

Barriers to Grain Imports in France, the Netherlands, Federal Republic of Germany, and United Kingdom

*Cathy L. Jabara and Alan S. Brigida**

Introduction

Trade restrictions imposed by the European Community (EC) on imported grains have been of major concern to grain-exporting countries since the inception of the EC's Common Agricultural Policy (CAP) in 1962. The cornerstone of the EC's grain import policy is a variable levy applied to grain imports from nonmember countries. The purpose of the levy is to protect domestic producers by raising import prices of grains to equal domestic support prices, regardless of the world price. The levy raised prices for grains from nonmember countries by an average of about 150 percent from 1974 to 1978 (*5*).[1]

Nontariff barriers, like the EC's variable levy, have become more pervasive impediments to international trade, as tariffs have been lowered through international negotiations. In order to bring nontariff barriers into international negotiations, information on the level and extent of protection afforded by nontariff barriers must be provided. With the exception, however, of the studies by Sampson and Yeats (*13*, *14*), Wipf (*17*), and Cline (*2*), few studies have attempted empirically to estimate the levels of protection provided by variable levies or other nontariff barriers.[2] This study describes EC regulations for imports and estimates the levels of protection

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[1] Italicized numbers in parentheses refer to references listed at the end of the report.

[2] The variable levy is a nontariff barrier because it is a charge which is frequently adjusted to maintain import prices at specific levels. Tariffs are charges that are fixed for a duration of time. Tariffs are of two types: a specific tariff is quoted as an absolute amount per unit, an ad valorem tariff is quoted as a percentage of the foreign price.

(both nominal and effective) provided by the grain import levies in France, the Netherlands, the Federal Republic of Germany, and the United Kingdom.[3] All those countries except France consume more grain than they produce; that is, they are major deficit producers of grains (table 1). The four countries purchased, on the average, 66 percent of total EC imports of food grains and 42 percent of EC imports of feed grains during 1974-78.

Sampson and Yeats (*13*) and Cline (*2*, p. 157) measured the level of protection afforded to EC producers by imposition of levies on imports of grains. Sampson and Yeats measured nominal and effective rates of protection for grains in the EC as a whole for 1969-70. They estimated the ad valorem tariff equivalent of import levies on grains (oats, rice, wheat, maize, and rye) to be 52 percent of border prices and the average protection rate to be 127 percent. Cline estimated the average ad valorem tariff equivalent of import levies on grains in 1972 to be 99 percent of Rotterdam prices.

This study examines levels of protection provided by grain import levies on an individual country basis and thereby includes the effects of the system of border taxes and subsidies (Monetary Compensatory Amounts — MCA's). The latter are applied in addition to import levies in order to account for fluctuations in member countries' exchange rates.[4]

European Community Grain Regulations

The EC's Common Agricultural Policy (CAP) for grains is an intricate system of target prices, intervention (support) prices, and threshold (minimum import) prices designed to increase EC farm incomes by raising grain prices above their free market levels. Regulations creating the "common market" for grains were put into effect in 1967; these regulations established both a single price support system for grains, and threshold prices and variable levies to prevent imported grains from underselling grains marketed by domestic producers (*5*, *15*). These policies were designed to promote increased EC production and intra-EC trade in grains.

The following are the key elements of the common pricing system for grains:

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[3]Effective protection for an industry measures the percentage change in its value added from free trade levels that results from the entire protective structure of a country's tariff and nontariff system (*1*, *11*). Nominal tariffs, or actual tariffs on final goods, affect consumption, whereas the relevant level of protection for an industry is the effective protection level.

[4]MCA's are also applied in intra-EC trade. This study, however, focuses on the effect of MCA's on EC trade with nonmember countries.

Table 1 — Grain imports, selected EC countries

Country	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
					1,000 metric tons					
France:										
Total imports	1,046	914	672	539	691	441	1,074	1,263	1,532	1,931
Intra-EC imports	6	5	17	9	6	22	147	32	52	579
Netherlands:										
Total imports	3,884	4,381	4,405	4,354	6,233	6,255	8,046	6,997	5,974	5,696
Intra-EC imports	1,560	1,480	1,785	2,345	2,321	2,160	1,937	1,353	1,429	2,321
Federal Republic of Germany:										
Total imports	6,058	7,570	7,763	8,299	8,018	6,808	6,255	8,034	6,398	6,120
Intra-EC imports	3,499	2,743	2,957	3,686	2,853	3,255	1,414	3,301	1,793	3,942
United Kingdom:										
Total imports	8,587	6,521	8,695	8,147	7,514	6,993	7,221	8,365	8,947	6,820
Intra-EC imports	2,151	1,701	1,674	1,879	2,999	3,840	3,319	4,218	3,957	2,093

Source: (*16*).

- *Target Prices*: A target price is set each year for the following crop year for wheat, maize, barley, and rye. The target price is the wholesale price level desired in the most deficit (highest price) consuming area, Duisburg, Germany.[5]

- *Intervention Prices*: Intervention prices for wheat, barley, maize, and rye are fixed for the Community for all marketing centers. Since the 1976/77 market year, the intervention price has been quoted for Loiret, France.[6] This price operates as a market floor and government agencies stand ready to buy any domestic grain offered at the intervention price.

- *Threshold Prices*: The threshold price is the minimum price at which imports are permitted to enter EC markets. This price is set at Rotterdam, but applies to all ports of entry in the EC. The threshold price is fixed so that the selling price of the imported grain on the Duisburg market will be the same as the target price.[7]

- *Variable Levies*: A levy is charged on imports of grains from nonmember countries. The levy is equal to the threshold price less the cost plus insurance and freight (c.i.f.) offer price from third countries at Rotterdam. The levy is adjusted daily to maintain equality between world offer prices and EC support prices for grains.

Support prices, import levies, and threshold prices for agricultural products in the EC are denominated in European Currency Units (ECU's) [formerly units of account (u.a.)].[8] The ECU functions as a standard of value, not as a currency unit. ECU values are translated into member country currencies before agricultural transactions take place.

Prior to the initiation of the floating rate system in 1973, the exchange rate between national currencies and the unit of account was determined by the par value of each national currency (gold equivalent) and the par value of the u.a., at that time equal to $1 in U.S. currency. As long as exchange rates remained fixed, trans-

[5]The calculation for the target price is based on the intervention price at Ormes, Department Loiret, France (the main surplus area), plus a transport charge from Ormes to Duisburg, and a market element designed to reflect the "market price" of grains in the surplus area (*15*).

[6]The market year extends from August in one year to July of the following year.

[7]A threshold price is set for oats as well as the grains mentioned previously.

[8]With the birth of the European Monetary System in March 1979, the standard for agricultural prices was changed from the unit of account to the European Currency Unit. The ECU is defined in terms of fixed amounts of the currencies of the nine EC member countries (*10*).

lation of u.a. values into national currencies presented no problems. However, when national currency par values were changed or, as happened after 1973, national currencies were permitted to float, each change in the value of the national currency relative to the u.a. implied a corresponding change in farm prices. For weak currencies, which tend to depreciate, exchange rate changes implied a corresponding rise in farm prices, whereas for strong currencies, which tend to appreciate, exchange rate changes implied a corresponding decline in farm prices (*9*, *12*).

EC countries have been unwilling to allow exchange rate adjustments to affect farm support prices. Instead, EC prices are translated into national currency values using special rates of exchange called representative or "green" rates. These rates are fixed for each member country and, with the exception of Denmark, are not equal to market exchange rates. Prices are equalized at the border in intra-EC and extra-EC trade by a system of border taxes and subsidies (MCA's). In extra-EC trade, MCA's are added to import levies for countries with appreciating currencies in order to raise prices of imports to domestic support levels. Similarly, MCA's are subtracted from import levies for countries with depreciating currencies in order to decrease prices of imports to the levels maintained by domestic price supports.

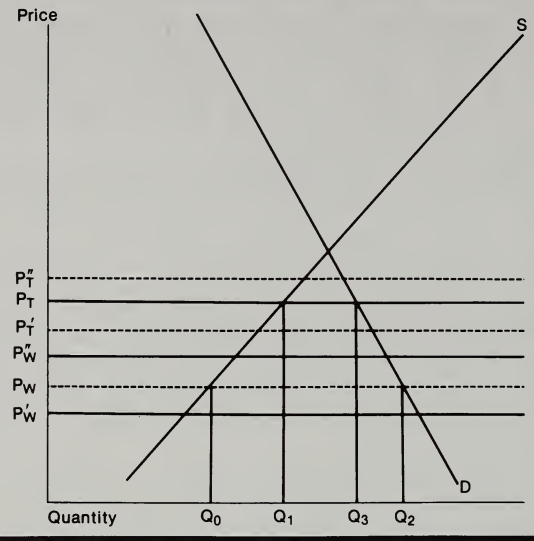
The effect of the import levy and MCA system on grain trade with third countries is illustrated in figure 1. In this figure, D represents the domestic demand schedule and S the domestic supply schedule for any grain in an EC importing country. Without the CAP, the country is able to import the grain at the world price P_w, and grain imports are represented by the distance $Q_0 - Q_2$. Under CAP regulations, imports are charged a levy equal to the difference between the world price, P_w, and the threshold price, P_t. Imports are permitted to enter at the threshold price, P_t, and imports decline from $Q_0 - Q_2$ to $Q_1 - Q_3$. Domestic producers receive protection from third country exports equal to the height of the levy, $P_t - P_w$.[9]

If, for example, the country's currency were to depreciate, the threshold price and the world price, in terms of national currency, would rise to P_t'' and P_w'', respectively. If the country maintains its green rate of exchange at the predepreciation level, the threshold price, P_t, will not change. However, the import price, which is translated from the exporter's currency into the importer's currency via market exchange rates, will rise to P_w'' and imports will enter at the depreciated price P_t''. An MCA subsidy equal to the amount of the depreciation, $P_t - P_t''$, is deducted from the national currency value of the levy to eliminate the increased cost from

[9]The levy is analyzed here as a specific tariff. In the next section, the ad valorem tariff equivalent of the levy is estimated.

Figure 1

Effect of Import Levies on Grain Trade for an EC Importing Country



currency depreciation. The threshold price remains constant at P_t, but the level of protection declines from $P_t - P_w$ to $P_t - P''_w$.

Similarly, the threshold price and the world price would fall to P'_t and P'_w for a country with an appreciating currency. In this case, an MCA tax equal to the amount of the currency appreciation, $P'_t - P_t$, is applied to the domestic currency value of the levy so that imports will enter at the fixed threshold price, P_t. The level of protection increases with the MCA tax from $P_t - P_w$ to $P_t - P'_w$.

The purpose of the MCA system is to maintain agricultural price levels in the member countries at levels determined by green rates of exchange. Without the fixed green rate and MCA system, farm support prices would rise in the depreciating currency country and would fall in the appreciating currency country.[10]

[10]In June 1973, the unit of account was permitted to float jointly with the currencies of the Federal Republic of Germany, Belgium, the Netherlands, Luxembourg, and Denmark against third country currencies. Thus, changes in market rates of exchange between the joint float and third country currencies were compensated by changes in the value of the common levy. MCA's became fixed and equal to the difference between green and market rates of exchange for joint float currencies. MCA's for independent floaters (United Kingdom, France, Italy, and Ireland) remained variable and represented exchange rate changes between their market rates and the joint float (*12*). The current ECU floats jointly with the currencies of all member countries, except those of the United Kingdom and Italy, against third country currencies (*10*).

Nominal Protection Rates

The nominal protection provided by grain import levies is estimated calculating the ad valorem tariff equivalent of each levy (N_{ij}):

$$N_{ij} = \frac{L_{ij}}{P_{ij}} \quad \begin{matrix} i = 1 \ldots 6 \text{ grains} \\ j = 1 \ldots 4 \text{ countries} \end{matrix} \qquad (1)$$

where

L_{ij} = value of the levy on the *ith* grain in the *jth* country (in dollars) and,

P_{ij} = import price of the *ith* grain into the *jth* country (in dollars).

Estimation of the levy, which reflects the green rate-MCA system, involves the following calculation (*3*, *12*):

$$L_{ij} = (\overline{L}_{ij} - ACA_{ij})\, g_j \pm MCA_{ij} \qquad (2)$$

where

$\overline{L}_{ij}$ = value of the common EC import levy on grain i translated into the *jth* domestic currency via green rates,

ACA_{ij} = accession compensatory amount applicable to the *ith* grain in the *jth* country,[11]

g_j = monetary coefficient applicable to the grains subgroup in the *jth* country,[12] and

MCA_{ij} = monetary compensatory amount applicable to the *ith* grain in the *jth* country (in domestic currency).

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[11] Accession compensatory amounts (ACA's) reflect differences between full CAP prices and the transitional CAP prices fixed for Denmark, Ireland, and United Kingdom upon entry into the EC in January 1973. ACA's were eliminated in January 1978.

[12] The monetary coefficient represents the difference between the green rate of exchange and the market rate (as defined for MCA purposes) expressed as a percentage of the market exchange rate. The monetary coefficient, based on unity, is expressed as:

$$\text{Monetary coefficient for appreciated currency} = 1.0 - \frac{\text{MCA percentage}}{100}$$

$$\text{Monetary coefficient for depreciated currency} = 1.0 + \frac{\text{MCA percentage}}{100}$$

The MCA is added to the value of the levy for a country with an appreciating currency and subtracted from the levy for a country with a depreciating currency. The value of the levy, L_{ij}, is translated into dollars via market exchange rates.

Table 2 shows the value of grain import levies (L_{ij}) for France, the Netherlands, Federal Republic of Germany, and the United Kingdom as a percentage of c.i.f. Rotterdam grain prices for 1970-78. This table isolates the effect of MCA's on common import levies because rates of protection estimated from c.i.f. broder prices also reflect differences in prices caused by transportation costs. Actual nominal levels of protection for the four countries estimated from unit value border prices are shown in table 3.[13]

The 9-year sequence of ad valorem rates presented in table 2 shows the yearly variability in the level of protection provided by grain import levies. When world prices of grains are high relative to EC threshold prices, the value of the levy is relatively low. Similarly, when world prices are low relative to EC threshold prices, the value of the levy is high. Low levels of protection during 1973-75 are the result of high world grain prices during this period.

France and the United Kingdom, countries with depreciating currencies between 1973 and 1978, have lower levels of protection from grain levies, compared with those of the Federal Republic of Germany and the Netherlands, countries with appreciating currencies. The average value of levies for grains, as a percentage of c.i.f. Rotterdam prices, is 50 percent in France, whereas the averages for the United Kingdom, the Federal Republic of Germany, and the Netherlands are 20, 65, and 58 percent, respectively (table 2). (The average for the United Kingdom includes the ACA's that were in effect until 1978.)

The average level of protection in the Federal Republic of Germany is higher than in the Netherlands because of Germany's higher MCA's, due to its maintaining a larger differential between green and market rates of exchange. The ACA's imposed by the United Kingdom, coupled with MCA's higher than those of France, reduced the levels of protection for the United Kingdom. The value of the levy on durum wheat, as a percentage of Rotterdam prices, was about the same for each country, although variable by year, until 1978. MCA's were not applied to durum wheat until that year.

The same relationships also hold for the actual protection given by border prices (table 3). The average ad valorem tariff incidence of import levies on grains is 62, 57, 41, and 17 percent in the Federal Republic of Germany, the Netherlands, France, and the United Kingdom, respectively. Differences in c.i.f. import prices into the

[13]Levies applied in the EC are based on c.i.f. Rotterdam prices. However, actual levels of protection should be calculated from border prices for each country.

Table 2 — Protection rates for grains estimated as a percentage of c.i.f. Rotterdam Prices, selected EC countries

Commodity and country	1970	1971	1972	1973	1974	1975	1976	1977	1978	Average 1970-78
					Percent					
Soft wheat:[1]										
France	80.5	78.5	81.5	18.0	−1.0	19.0	36.6	74.6	78.7	51.8
Netherlands	81.1	81.2	83.4	18.0	3.0	23.8	45.2	97.3	101.4	59.7
FRG	80.4	78.3	87.0	25.5	8.9	32.9	54.6	108.0	112.6	65.4
United Kingdom	N.A.	N.A.	N.A.	1.7	−1.0	−3.6	5.7	47.2	62.2	18.9
Durum wheat:[2]										
France	80.0	90.4	84.0	17.5	0	12.6	62.5	131.3	106.1	64.9
Netherlands	80.0	90.6	84.0	17.4	0	11.6	63.2	134.9	136.8	68.7
FRG	80.0	90.3	85.0	17.0	0	11.7	63.1	131.7	153.6	70.3
United Kingdom	N.A.	N.A.	N.A.	3.3	0	2.5	34.6	107.7	83.1	38.5
Barley:[3]										
France	66.8	64.8	71.0	17.5	−1.0	16.6	21.1	54.9	94.9	45.1
Netherlands	66.5	67.4	73.4	20.8	4.2	22.3	29.4	76.7	119.6	53.4
FRG	66.7	65.1	76.9	27.1	11.6	32.3	38.3	87.5	132.9	59.8
United Kingdom	N.A.	N.A.	N.A.	1.1	−1.0	−4.0	−6.5	26.5	76.9	15.3
Maize:[4]										
France	47.0	54.8	80.0	18.7	−1.0	18.7	32.0	63.3	91.6	45.0
Netherlands	46.7	57.1	82.4	23.4	3.9	23.9	40.6	85.4	116.8	53.4
FRG	46.9	56.2	86.2	28.3	10.4	33.6	49.7	96.0	130.6	59.8
United Kingdom	N.A.	N.A.	N.A.	1.8	−1.0	−6.0	6.6	34.1	73.0	17.5
Oats:[5]										
France	40.0	65.4	67.2	10.2	−1.0	16.4	17.5	50.2	91.7	39.7
Netherlands	40.0	65.6	78.6	16.5	3.1	21.1	28.2	74.1	117.0	49.4
FRG	40.0	67.4	81.5	22.6	12.3	30.2	37.3	87.6	130.5	56.6
United Kingdom	N.A.	N.A.	N.A.	1.7	−2.0	−2.0	−6.0	21.1	73.5	14.4
Rye:[6]										
France	76.0	81.1	90.2	30.7	2.0	29.7	40.6	64.3	80.9	55.0
Netherlands	76.0	83.0	104.3	40.0	9.5	34.6	55.7	90.8	106.7	63.8
FRG	76.0	81.0	110.1	47.5	19.5	44.4	66.3	106.9	120.4	74.7
United Kingdom	N.A.	N.A.	N.A.	2.0	−2.0	1.0	7.6	33.1	62.1	17.3

N.A. = Not available. [1] Average of c.i.f. Rotterdam prices, U.S. soft red winter II and Canadian western red spring wheats. [2] U.S. hard amber durum wheat III. MCA's applied in 1978. [3] U.S. feed barley. [4] U.S. No. 3 yellow corn. [5] U.S. extra heavy white II. [6] Canadian western II. Sources: (*3*, *6*).

Table 3 — Protection rates for grains estimated as a percentage of border prices, selected EC countries

Commodity and country	1970	1971	1972	1973	1974	1975	1976	1977	1978	Average 1970-78
					Percent					
Soft wheat:										
France	59.3	66.8	72.1	18.6	−1.0	16.1	25.0	67.8	72.2	44.1
Netherlands	80.2	72.3	90.0	32.2	4.2	22.7	36.0	83.6	105.4	58.5
FRG	75.3	74.6	96.7	36.1	9.3	30.0	38.6	92.0	111.6	62.7
United Kingdom	N.A.	N.A.	N.A.	N.A.	−4.7	−3.0	4.3	36.1	55.4	17.6
Durum wheat:[1]										
France	79.6	90.1	83.2	15.6	0	11.1	46.8	90.0	92.6	56.6
Netherlands	80.0	92.5	89.8	19.8	0	12.7	59.0	111.4	144.2	66.7
FRG	79.4	91.8	88.7	19.4	0	11.5	53.0	108.5	153.0	67.9
United Kingdom	N.A.	N.A.	N.A.	N.A.	0	2.0	30.0	58.1	69.6	31.9
Barley:										
France	58.6	39.4	55.5	17.1	−1.0	14.2	19.2	34.4	76.0	34.8
Netherlands	65.7	55.1	77.8	22.2	4.7	20.7	30.0	65.7	115.0	50.8
FRG	65.9	56.7	85.9	27.0	12.7	27.9	35.3	73.5	135.3	57.8
United Kingdom	N.A.	N.A.	N.A.	1.2	−1.0	−3.0	−6.0	19.9	59.8	11.8
Maize:										
France	34.3	39.0	57.5	16.1	−1.0	15.0	26.0	49.0	79.2	35.0
Netherlands	46.6	53.9	78.6	24.1	4.2	23.0	36.4	73.2	119.6	51.0
FRG	46.5	52.5	86.1	27.9	11.0	28.8	43.0	78.0	133.7	56.4
United Kingdom	N.A.	N.A.	N.A.	2.0	−1.0	−5.0	3.0	33.3	61.7	15.7
Oats:										
France	28.9	49.4	63.5	12.1	−1.0	18.5	17.9	36.5	82.0	34.1
Netherlands	41.5	65.6	76.8	20.5	3.4	22.9	27.5	73.2	125.4	50.8
FRG	44.9	66.6	83.3	26.7	13.5	31.0	34.3	77.3	128.4	56.2
United Kingdom	N.A.	N.A.	N.A.	1.0	−3.0	−4.8	−5.6	18.2	51.0	9.5
Rye:										
France	70.0	56.4	60.1	22.0	1.7	20.6	42.1	47.0	69.0	43.4
Netherlands	81.1	71.3	91.5	35.3	10.2	33.6	53.4	86.7	111.3	63.8
FRG	83.3	79.8	110.2	40.4	19.2	39.5	60.4	90.2	121.0	71.6
United Kingdom	N.A.	N.A.	N.A.	2.5	−1.0	1.0	8.0	26.0	47.0	13.9

N.A. = Not available. [1] MCA's applied in 1978. Source: (*3*, *16*).

Netherlands and Federal Republic of Germany tend to narrow slightly the differences in protection levels caused by MCA's. Higher import prices for grains in France and the United Kingdom work in the same direction as MCA's to lower the protection levels for grains.

Tables 2 and 3 indicate that the highest ad valorem incidence of levies by commodity is for food grains, rye, durum, and soft wheat. Feed grains, maize, oats, and barley have lower levels of protection. Negative protection levels during 1974-76 are the result of subtracting MCA's from levies in France and subtracting MCA's and ACA's in the United Kingdom when the value of the levy was low.[14]

Effective Protection Rates

The net protection provided to the production process rather than the duty on the final product is the most relevant measure of the protection afforded domestic producers (*1*, *11*). In addition to the nominal protection provided by the levy calculated above, the influence of duties imposed on raw materials must also be considered. While the nominal tariff rate on industry, t, is defined as $t = (P' - P)/P$ where P' and P are unit prices of the industry's output, with and without tariffs, respectively, the rate of effective protection, g, is defined as $g = (V' - V)/V$ where V' and V are the value added per unit of output with and without protection, respectively. Effective rates of protection show how tariffs affect the production pattern by specifying how tariffs affect value added or the process of an industry.

Estimates of effective protection from levies were calculated for France and Federal Republic of Germany for 1972-74 using the following formula:[15]

$$E_{ij} = \frac{W_{ij}}{\frac{S_{ij}}{(1+N_{ij})} - \frac{M_{ijk}}{(1+G_{ijk})}} - 1, \quad \begin{matrix} i = 1 \ldots 6 \\ j = 1,2 \\ k = 1,2,3 \end{matrix} \qquad (3)$$

[14]Until October 1974, the values of MCA's applied to levies were limited for a country with a depreciating currency, to the size of the levy charged on imports (*12*).

[15]Effective protection rates were not calculated for the United Kingdom because it did not enter the EC until January 1973. Effective rates were not calculated for the Netherlands due to data limitations. The effective rate was not calculated beyond 1974 because complete data are not yet available after that year.

where:

E_{ij} = effective rate of protection for the *ith* grain in the *jth* country,

W_{ij} = domestic value added at factor cost for the *ith* grain in the *jth* country,

S_{ij} = value of the *ith* grain at domestic prices in country j,

M_{ijk} = value of the k*th* input employed in the production of grain i in country j, at domestic prices,

N_{ij} = ad valorem tariff equivalent of the import levy on grain i in country j (from table 3), and

G_{ijk} = tariff rate on the k*th* input used in production of grain i in country j.

The value of W_j for each crop was obtained from Standard Gross Margins (SGM) estimated by crop for the EC member countries during 1972-74 (*4*; also see appendix table 2 at the back of this report). The SGM were calculated for each country in the EC by subtracting the principal variable costs (fertilizer, crop protection, miscellaneous) from the gross value of production of each crop. The value of gross production includes any subsidies to production (for example, those for durum wheat). Any subsidies on input use are deducted from the cost of the inputs.[16]

The value of production, S_j, used for the analysis is the average producer price in each country for 1972-74.[17] M_{ij}, the value of inputs used in production, was estimated by subtracting the SGM from S_j. The resulting value for M_{ij} is assumed to represent fertilizer, crop protection, and other expenses in a ratio of 3:1:1 (*8*). Tariff rates were applied for fertilizer and crop protection expenditures at levels of 7 percent and 15 percent, respectively.

The average estimates of nominal and effective protection for France and the Federal Republic of Germany are shown in table 4. The nominal and effective rates are lower than would be expected

[16] As estimated by the SGM, the value of W_j is equal to the concept of gross value added at factor cost. For a more accurate estimate on value added in the industry, costs related to depreciation on machinery and buildings should also be subtracted from gross production. The SGM, by failing to make that subtraction, actually overstates the true measure of the value added (*7*).

[17] All prices are exclusive of the value-added tax (VAT). As long as VAT is applied equally to imports and domestic production, the VAT should have no effect on effective protection rates.

Table 4 — Nominal and effective rates of protection, Federal Republic of Germany and France, 1972/73-1974/75 marketing years

Commodity	Federal Republic of Germany			France		
	Nominal rate (a)	Effective rate (b)	Ratio[1] (b/a)	Nominal rate (c)	Effective rate (d)	Ratio (d/c)
			Percent			
Soft wheat	47	73	155	30	43	143
Durum wheat	36	[2]	[2]	33	158	478
Oats	48	73	152	25	35	140
Rye	57	90	158	28	36	129
Barley	42	59	140	24	38	158
Maize	42	98	233	24	36	148

[1] The ratio is included only to show the relative size of the effective rate compared with the nominal rate of protection.

[2] The Federal Republic of Germany does not produce durum wheat, so an effective rate of protection cannot be calculated. The nominal rate, however, can be calculated since it is a function solely of the offering price and the border taxes.

because of the low values of the levy in 1973 and 1974. However, the results do indicate that effective rates of protection are much higher than the nominal rates indicated by the levy. This is particularly true for durum wheat, which has the highest effective rate of protection due to the producer subsidy on this crop.

Effective rates of protection are higher in the Federal Republic of Germany than in France due to the higher levels of protection from import levies in the former. The highest levels of effective protection in the Federal Republic of Germany are for rye and maize at 90 and 98 percent, respectively. The high relative effective protection rate for maize is due, in part, to the relatively low value of the ratio of the value of the SGM for maize to the value of production. In France, the highest effective rates are for soft and durum wheat and maize.

Conclusions

Protection levels afforded by levies in the EC countries are quite high, although variable. The results of this study have important implications for future studies designed to provide estimates of protection afforded by levies in the EC. First, because the value of the levy is the difference between the EC threshold and the world price, protection afforded by levies varies from year to year. Thus,

estimates of protection from levies for a single year can be misleading. Second, although common prices are maintained among EC countries, exchange rate changes among member countries' currencies are important in determining the levels of protection afforded to grains in extra-EC trade. Thus, there is no "common barrier" to third country imports. Instead, due to exchange rate fluctuations, each member country maintains its own level of protection from imports.

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Appendix table 1 — Average producer prices and yields for grains, France and Federal Republic of Germany, 1972-74

Country and commodity	Value	Yield
	U.a. per ton	*Tons per hectare*
France:		
Soft wheat	314.8	464.0
Durum wheat	363.8	296.7
Barley	245.8	383.0
Maize	294.9	484.3
Oats	182.5	318.2
Rye	169.7	266.3
Federal Republic of Germany:		
Soft wheat	370.3	442.3
Barley	321.3	402.0
Maize	298.3	501.7
Oats	289.3	374.3
Rye	283.6	353.0

Source: (*5*, *6*). Conversion rates into national currencies: 1 u.a. for 1972 to 1974 = DM 3.30936, F#5.61631.

Appendix table 2 — Gross margins for grains, France and Federal Republic of Germany, 1972-74

Country and commodity	Average 1972-74
	U.a. per hectare
France:	
Soft wheat	314.8
Durum wheat	363.8
Barley	245.8
Maize	294.9
Oats	182.5
Rye	169.7
Federal Republic of Germany:	
Soft wheat	370.3
Barley	321.3
Maize	298.8
Oats	289.3
Rye	283.6

Source: (*4*). See appendix table 1 for conversion rates into national currencies.

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